3. DOCUMENTATION AND REVIEW STANDARDS

This section details the documentation requirements for the O&GS SM Project Operations Test Program. The required documents, their format, and delivery time frame will be given for each type of test. The documentation section covers the documentation for all testing.

3.1 REQUIRED DOCUMENTATION

There are three required documents for each test, the test plan/ procedure, the flash test report, and the final test report. The documentation required to support the test activities defined in this plan will be reviewed by all participating elements prior to final signature approval.

3.1.1 Test Plan/Procedure Document

A test plan/procedure document will be required for every test performed. It will take the high-level information provided in this O&GS SM Project Operations Test Program and provide test unique information and the details necessary to execute each specific test. The test plan/procedure is issued in a draft and final version. The draft test plan/procedure needs to be completed at least four weeks prior to the test, with the final version completed no later than three days prior to the test date for the TRR. The lead organization will be responsible for compiling all inputs to the test plan/procedure, insuring its completeness and issuing the document for review prior to the TRR. The Test Plan/Procedure document will contain the following information:

TITLE PAGE

SIGNATURE SHEET

Include all necessary signatures for flight hardware, 441, 442, and 500 personnel. The signature sheet should contain the minimum amount of signatures needed to authorize the test. This will make obtaining the needed signatures easier and less time consuming.

TABLE OF CONTENTS

ACRONYM LIST

Include a list of all applicable acronyms used in the document.

Section 1 - INTRODUCTION

Provide a brief introduction to the document.

1.1 PURPOSE

Briefly describe the purpose of the plan**/procedure document**.

1.2 SCOPE

Briefly describe scope of the test plan/procedure document.

1.3 TEST PLAN**/PROCEDURE**

Supplies test specific details pertinent to the approach that will be used for this test as indicated in the O&GS test plan. Test unique items that appear in a test specific test plan**/procedure** will be supplied in addition to detailed test requirements and success/failure criteria.

1.4 REFERENCE DOCUMENTATION

Lists documents which are pertinent as background material to the plan/procedure.

1.5 DOCUMENT ORGANIZATION

Briefly identifies how the plan/**procedure** is organized.

Section 2 - TEST OVERVIEW

Provide an introductory paragraph into this section.

2.1 OBJECTIVES

Describes the objectives of the test(s). Details requirements verification information.

2.2 TEST ROLES AND RESPONSIBILITIES

Describes the roles that supporting organizations will play in performing the necessary pre-test, test, and post-test activities.

2.3 TEST ACTIVITIES

Provides a high-level description of what will be performed during testing.

2.4 TEST PREREQUISITES

Identifies items that must be resolved or occur prior to the beginning of testing. The releases of all required ground system elements will also be given here, i.e.. all the releases required for SR #2. Provides PDB verification

listing **which** is a list of all PDB files that must be level **2** certified to be used in this test.

SECTION 3 - TEST IDENTIFICATION

Provide an introductory paragraph into this section.

3.1 SESSION 1 - SESSION NAME

(this section will be repeated for multiple test sessions)

3.1.1 Test Configuration

Identifies the hardware and software configuration to be used for this test session. Include any figures/diagrams which help illustrate the configuration.

3.1.2 Test Method

Verbally describes those activities that will be conducted during this test session in order to verify the hardware/software being tested.

3.1.3 Verification Method

Describes how verification of this test session is to be accomplished. Identify expected results.

SECTION 4 - RESOURCES

Provide an introductory paragraph into this section.

4.1 DATA SOURCES

Identifies all test data sources and the people responsible for support to be utilized during testing (i.e. HST simulator, tape data, VEST)

4.2 SYSTEM/FACILITY REQUIREMENTS

Identifies all systems and facilities to be involved in testing and their requirements for supporting the test. All test hardware and software required will be addressed here. Personnel responsible for supporting these system/facility requirements will also be given here.

4.3 KEY PERSONNEL

Provide a list of all key personnel (i.e., test director, Test Coordinator, test conductor, Science Instrument (SI) Systems Engineer (SE) to be involved in testing including phone numbers, and EMail addresses.

SECTION 5 - LIMITATIONS/CONSTRAINTS

Identify any limitations and/or constraints that apply to test activities which will be conducted.

SECTION 6 - TEST PROCEDURE

6.1 PRETEST SETUP

Provides any pretest setup activities which must occur prior to starting the actual test.

6.2 STEP-BY-STEP PROCEDURES

Provides step-by-step procedures to be executed.

6.3 POST-TEST WRAP-UP

Provide any post-test activities which are required at the conclusion of the actual test.

APPENDIX A - REQUIREMENTS VERIFICATION MATRIX
(matrix identifying all requirements intended to be verified)

APPENDIX B - PDB CERTIFICATION LISTING
(matrix indicating all PDB items to be verified)

3.1.2 Flash Test Report

A flash test report will be issued within three days of the completion of the test. This report will provide quick, concise feedback to the project about the test. The flash test report will not need signatures or review prior to its release. The flash report will be compiled and issued by the lead organization SVG. Any comments about the flash test report will be directed back to SVG for incorporation into the detailed test report. The flash report will contain the following sections:

- Cover page - This will summarize the success (complete or partial) or failure of the test and mention any major events that occurred.
- TSAR Report - This section will list all TSARs written during the test and provide a one line summary about each one.
- O&GS Requirements Matrix - This section will contain the requirements matrix that was contained in the test procedure, and indicate a pass/fail for each one. This will be used to determine if the test was a success, failure or partial success, and determine whether further testing is needed to satisfy the test requirements that were listed in the test procedure.

3.1.3 Final Test Report Document

The Test Report Document will highlight all of the major activities which occurred during testing. The test report will be a high level review of the test results. The test report will be compiled by the lead organization with all appropriate inputs. This report will be issued within four weeks of test completion in final form. There will be no draft release of the final report. The Test Report document will contain the following information:

TITLE PAGE

TABLE OF CONTENTS

SECTION 1 - TEST OVERVIEW

Provide an introductory paragraph into this section.

1.1 ACTIVITY SUMMARY

Brief description of what happened during testing. This section will contain the success or failure of the test based on the objectives met and requirements satisfied by test procedure execution.

1.2 DEVIATIONS

Brief description on any deviations to the test (i.e.. test configuration, procedural changes).

1.3 ANOMALIES

Brief discussion of any anomalies that occurred during testing. A summary of all TSARs and **HST Integration and Test Anomaly Report System(**HARs**)** will be given in this section.

1.4 RECOMMENDATION

Brief recommendation based on test activity results.

APPENDIX A - PROBLEM REPORTS GENERATED

(matrix of TSARs, HARs, DRs, etc.)

APPENDIX B - REQUIREMENTS VERIFICATION MATRIX

(same matrix as Test Plan with an additional column indicating if requirement passed or failed)

APPENDIX C - PDB CERTIFICATION MATRIX
(matrix indicating all PDB items verified)

3.2 REVIEWS AND TIME FRAMES

All formal Servicing Mission test activities will require several reviews during the development of documentation and immediately prior to and following actual testing. These reviews will be handled in an efficient and timely manner. These reviews and their time frames include:

Test Procedure draft review - A walk through of the draft version of the Test Plan/Procedure document is required for all tests described and performed in this test plan. The test plan/procedures draft will be produced no later than four weeks prior to the scheduled test date. The review comments should be submitted to the responsible organization as hardcopy redlines or electronically, no later than one week prior to the scheduled start of the test. All participants will be required to review the procedure. Comments and redlines are due in hard copy or electronically to the group responsible for producing the test

procedure. SVG is responsible for the hardware/command plan ground system test procedures, and ITAV is responsible for the string test/ communication test procedures. Reviews will be statused at the weekly O&GS Project Operations SM Test Team meeting.

Test Plan/Procedure final review - A review of the final as-planned version of the Test Plan/Procedure document will be completed prior to the TRR. The purpose of this review is to prepare the procedure for the TRR. This will require a smaller review group than the initial test procedure review, and the purpose is to insure that the redlines are incorporated correctly before the TRR. The final as-planned review will be conducted by the O&GS SMSE, SVG and ITAV.

Test Readiness Review - The TRR will be held at least 24 hours before the start of the test to allow for the incorporation of any resulting redlines into the test script. All supporting organizations will **convene** to determine readiness of facilities, hardware, software and plan/procedures. An electronic copy of the plan/procedure will be projected on an overhead for the TRR. TRR updates will be incorporated into the script as the review progresses. The test plan/procedure will be signed off at the TRR as sign-offs are a prerequisite to the VEST work orders which are required one day prior to the test. All parties required to sign off on the final test plan/procedure, are required to attend the TRR. SVG will schedule and coordinate the TRRs for the hardware/ command plan ground system tests, and ITAV will coordinate the TRRs for the ground system string/ communication tests. The O&GS SMSE will chair the TRRs for the ground system tests. SVG, ITAV and the O&GS SMSE are responsible for resolving any issues that arise during the TRR.

Pre-test **set-up** briefing **- This** will be held for each test session over voice circuits. The briefing will occur at least 30 minutes prior to the start of initial set-up and include a review

of any **test se-up** redlines which were made to the test plan/procedure during the TRR.

Test **Pre-brief** - This will occur on the communications loop after test set-up and prior to execution of the test plan/procedure. The **test** pre-brief will review a**ll** changes to the script that occurred as a result of the TRR. The **test pre-brief** will also insure that all organizations are ready to support the test.

Post-test brief - This will occur on the communications loop immediately after test execution is complete. The post-test brief will review any discrepancies that occurred during the test. This will serve to screen any TSARs that were written, before they are input to the system.

Test Debrief - This will occur no later than five working days after the test is completed. The debrief is conducted by the O&GS SMSE. The debrief will review the test and status the results. Debrief material will be collected for inclusion into test report.